**IN THE U.S. PATENT AND TRADEMARK OFFICE**

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| Application No.: | 09/919,045 |
| Filing Date: | July 31, 2001 |
| Appellants: | Ramesh NAGARAJAN et al. |
| Group Art Unit: | 2416 |
| Examiner: | Brenda H. Pham |
| Title: | MINIMUM CONTENTION DISTRIBUTED WAVELENGTH ASSIGNMENT IN OPTICAL TRANSPORT NETWORKS |
| Attorney Docket: | 129250-002077/US |

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# APPELLANTS' BRIEF ON APPEAL

**MAIL STOP APPEAL BRIEF - PATENTS**
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Randolph Building
401 Dulany Street
Alexandria, VA 22314

October 20, 2009

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# APPELLANTS' BRIEF ON APPEAL

## I. REAL PARTY IN INTEREST:

The real party in interest in this appeal is Lucent Technologies Inc. Assignment of the application was submitted to the U.S. Patent and Trademark Office and recorded at Reel 012194, Frame 0098.

## II. RELATED APPEALS AND INTERFERENCES:

There are no known appeals or interferences that will affect, be directly affected by, or have a bearing on the Board's decision in this Appeal.

## III. STATUS OF CLAIMS:

Claims 1-14 are pending in the application, with claims 1, 6, 8 and 12 being written in independent form.

Claims 1-7 were rejected under 35 U.S.C. §101, the Examiner taking the position that the claimed subject matter is directed to non-statutory subject matter. **In an Advisory Action mailed July 31, 2009 the Examiner withdrew these rejections.** Claims 1, 2, 6, 8, 9 and 12 were rejected under 35 U.S.C. § 102(e) as being anticipated by Beshai et al., U.S. Patent No. 6,744,775 ("Beshai"). Claims 1, 2, 6, 8, 9, and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,256,295 ("Callon") in view of Beshai. Claims 4 and 11 were rejected under 35 U.S.C. § 103(a) based on the combination of Callon, Beshai and U.S. Patent No. 7,009,966 to Borchering ("Borchering").

Claims 1-14 are being appealed.

## IV. STATUS OF AMENDMENTS:

A Request for Reconsideration ("Request") was filed on July 17, 2009. In an Advisory Action dated July 31, 2009, the Examiner stated that the Request was considered but did not place the application in condition for allowance.

## V. SUMMARY OF CLAIMED SUBJECT MATTER:

### (i). Overview of the Subject Matter of the Independent Claims

The present invention is directed at methods and apparatuses for negotiating predefined sequences associated with link resources (e.g., ports and wavelengths) between neighboring and adjacent nodes in order, for example, to avoid problems related to link resource contention. More specifically, independent claim 1 reads as follows (specification citations are in parenthesis):

**1.) A method for use in a node of an optical network, the method comprising the steps of:**

**receiving a connection request** (page 4, lines 9-13; page 7, lines 9-12; and page 9, line 26)**; and**

**assigning a link resource selected from link resources that have been released** (page 7, lines 30-31; page 8, lines 5 and 6; and page 9, lines 28 to page 10, line 10) **for connecting to a neighboring node by using at least one predefined sequence** (page 6, lines 1-7, 15-17)**, that comprises ports and corresponding wavelengths** (page 7, lines 17-19; and page 10, lines 6-10) **within a node, to avoid contention resulting from the request** (page 5, line 9 to page 6, line 7; page 7, lines 19 and 20; and page 9, lines 22-24)**,**

**wherein the at least one predefined sequence resulted from a negotiation with the neighboring node prior to receipt of the request** (page 6, lines 1-7, 15-17)**.**

Dependent claim 4 reads as follows:

**4.) The method of claim 3, wherein the link resources are selected from the group consisting of wavelengths, SONET-based tributaries, SDH-based tributaries, and PDH-based tributaries** (page 11, lines 3-5)**.**

Independent claim 6 reads as follows:

**6.) A method for use in a node of an optical network, the method comprising the steps of:**

**storing a table, wherein the table comprises resources associated with a link with an adjacent node**(page 6, line 25 to page 7,line 29)**; and**

**upon receipt of a connection request, selecting a link resource that has been released from the table for use in connecting to the adjacent node** (page 7, lines 30-31; page 8, lines 5 and 6; and page 9, lines 28 to page 10, line 10)**, wherein the selection is performed in accordance with a predefined selection sequence** (page 6, lines 1-7, 15-17) **that comprises ports and corresponding wavelengths** (page 7, lines 17-19; and page 10, lines 6-10) **within a node to avoid contention associated with the request** (page 5, line 9 to page 6, line 7; page 7, lines 19 and 20; and page 9, lines 22-24)**, and**

**wherein the predefined selection was previously negotiated with the adjacent node prior to receipt of the request** (page 6, lines 1-7, 15-17)**.**

Independent claim 8 reads as follows:

**8.) Apparatus for use in an optical network, the apparatus comprising:**

**a communications interface** (page 10, lines 23-26) **for use in negotiating a selection sequence, comprising ports and corresponding wavelengths** (page 7, lines 17-19; and page 10, lines 6-10) **within a node, with an adjacent node prior to receipt of a connection request** (page 6, lines 1-7, 15-17)**; and**

**a processor** (page 10, lines 18 and 19)**, responsive to a connection request, for selecting a resource from link resources that have been released** (page 7, lines 30-31; page 8, lines 5 and 6; and page 9, lines 28 to page 10, line 10) **in accordance with the selection sequence for connecting to the adjacent node over a link to avoid contention associated with the request** (page 5, line 9 to page 6, line 7; page 7, lines 19 and 20; and page 9, lines 22-24)**.**

Dependent claim 11 reads as follows:

**11.) The apparatus of claim 10, wherein the resources are selected from the group consisting of wavelengths, SONET-based tributaries, SDH-based tributaries, and PDH-based tributaries** (page 11, lines 3-5)**.**

Independent claim 12 reads as follows:

**12.) A node of an optical network, comprising:**
**a memory means for storing a table, wherein the table comprises resources associated with a link with an adjacent node** (page 10, lines 20-23)**; and**
**a processing means** (page 10, lines 18 and 19) **for use in processing a connection request such that upon receipt of the connection request** (page 4, lines 9-13; page 7, lines 9-12; and page 9, line 26)**, the processing means selects a link resource from the table that has been released for use in connecting to the adjacent node node** (page 7, lines 30-31; page 8, lines 5 and 6; and page 9, lines 28 to page 10, line 10)**, wherein the selection is performed in accordance with a predefined selection sequence** (page 6, lines 1-7, 15-17) **comprising ports and corresponding wavelengths** (page 7, lines 17-19; and page 10, lines 6-10) **with a node to avoid contention associated with the request** (page 5, line 9 to page 6, line 7; page 7, lines 19 and 20; and page 9, lines 22-24)**, and wherein the predefined selection sequence was previously negotiated with the adjacent node prior to receipt of the request** (page 6, lines 1-7, 15-17)**.**

In order to make the overview set forth above concise the disclosure that has been included, or referred to, above only represents a portion of the total disclosure set forth in the Specification that supports the independent claims.

**(ii). The Remainder of the Specification Also Supports the Claims**

The Appellants note that there may be additional disclosure in the Specification that also supports the independent and dependent claims. Further, by including the specification citations in parenthesis above the Appellants do not represent that this is the only evidence that supports the independent claims nor do Appellants necessarily represent that these citations alone can be used to fully interpret the claims of the present invention. Instead, the citations provide background support as an overview of the claimed subject matter.

## VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL:

Appellants seek the Board's review and reversal of: (a) the rejection of claims 1, 2, 6, 8, 9 and 12 under 35 U.S.C. § 102(e) based on Beshai; (b) the rejection of claims 1, 2, 6, 8, 9, and 12 under 35 U.S.C. § 103(a) based on Callon in view of Beshai; and (c) the rejection of claims 4 and 11 under 35 U.S.C. § 103(a) based on the combination of Callon, Beshai and Borchering.

## VII. ARGUMENTS:

### A. The 35 U.S.C. § 102 Rejections

Claims 1, 2, 6, 8, 9 and 12 were rejected under 35 U.S.C. § 102(e) based on Beshai. The Appellants respectfully disagree for at least the following reasons.

Of the rejected claims, claims 1, 6, 8 and 12 are independent claims. It is to these claims that Appellants now turn, it being understood that the remaining claims depend on these claims and, therefore, the remarks which follow apply equally to these claims as well.

#### (i) claims 1 and 6

Independent claim 1 includes the features of "at least one predefined sequence [resulting] from a negotiation with [a] neighboring node prior to receipt of [a] connection request". Claim 6 differs from claim 1 in that it recites a "predefined selection sequence" instead of a pre-defined sequence. For present purposes, this difference is immaterial.

Because independent claims 1 and 6 recite similar features, for the sake of clarity, the Appellants direct their attention to claim 1. Beshai does not appear to disclose the recited features of claim 1 (and 6).

#### (a) "neighboring node" feature

In Beshai, a controller appears to "distribute" nodal routing tables and link state information to interconnected nodes in a network (see Beshai, col. 5 ln 42-45 and Fig. 19, step 1902). But Beshai's controller is not a neighboring

node because such a controller can be located anywhere (i.e., there is no requirement that a controller be a neighboring node, see Fig. 18, particularly step 1804).

**(b) "predefined sequence" feature**

Further, Beshai does not appear to disclose the use of the claimed pre-defined sequence. In the Final Office Action the Examiner appears to equate a "routing table" with the claimed pre-defined sequence. This is incorrect.

As the Examiner knows well, though Examiners may interpret claims broadly any interpretation must be reasonable and consistent with the specification, *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000). Here, the Examiner's interpretation of a routing table as being akin to the claimed predefined sequence is inconsistent with the specification and, therefore, impermissible.

Specifically, the phrase "predefined sequence" in the claims of the present invention means at least a sequence that is used to assign or select link resources within a single node. Further, such link resources include ports and corresponding wavelengths.

In contrast, Beshai makes no mention of the use of a "sequence" whatsoever. Further, Beshai's routing tables appear to include information such as traffic occupancy information (see Beshai at col. 2 ln 8-11), not pre-defined sequences, ports or wavelengths.

**(c) Advisory Action**

In the Advisory Action the Examiner takes the following positions: (a) the claimed feature of "predefined sequences" can be interpreted as a "pre-defined set of routes" because the instant specification does not define the phrase "pre-defined sequence"; and (b) the claimed feature of "negotiation with [a] neighboring node" can be interpreted as "monitoring" links by a node and the "distribution" of nodal routing tables and link state information to nodes by a

controller. The former is incorrect, while the latter is both incorrect, and, candidly, difficult to follow.

First, the phrase "pre-defined sequence" is explained in the specification. For example, beginning on page 6 lines 1, and running to page 7, line 29 there is presented an explanation of the phrase "pre-defined sequence". From this explanation it is clear that this phrase means at least a sequence that is used to assign or select link resources within a single node. This sequence is determined separate and a part from determining available routes. Rather than relate to those routes that may be used, the phrase "pre-defined sequence" relates to an order in which *link resources* may be used.

More specifically, the resources discussed in the specification are ports and corresponding wavelengths, not routes.

With respect to (b), the issue raised by the Appellants is that the device that is purportedly negotiating routes in Beshai, namely the controller, is not a "neighboring node". To the extent that a node in Beshai monitors its adjacent links, this too is not a negotiation. Even if such monitoring can be interpreted as a negotiation of sorts, the node involved in the negotiation is not responsible for assigning a link resource using at least one predefined sequence because any assignment is completed by a controller located at some indefinite place within a network.

**(ii) claims 8 and 12**

For present purposes, independent claims 8 and 12 are similar to claims 1 and 6, except these claims use the phrase "adjacent node" instead of neighboring node. Thus, the arguments regarding the patentability of claims 8 and 12 over Beshai will be similar, though not identical.

**(a) "adjacent node" feature**

Because Beshai does not describe the location of its controller with relationship to its nodes, it is difficult to determine whether one skilled in the

art, upon reading Beshai, would understand Beshai as disclosing a controller that is an "adjacent node". Patentability should not be based on guesswork or conjecture. Because one skilled in the art would have to rely on pure guesswork and conjecture, as opposed to facts or reasonable inferences, to interpret Beshai as disclosing a controller that is an "adjacent node" the more reasonable position is that Beshai fails to disclose or suggest such a feature.

**(b) "sequence" features**

Even if the Board decides that Beshai can be interpreted as disclosing a controller that is an adjacent node, claims 8 and 12, respectively, also include the feature of either "negotiating a selection sequence...with an adjacent node prior to receipt of a connection request" (claim 8) or "a predefined selection sequence comprising ports and corresponding wavelengths ...wherein the predefined selection sequence was previously negotiated with [an] adjacent node prior to receipt of [a connection] request" (claim 12).

As set forth above, in light of the teachings of the specification the phrases "selection sequence" and "predefined selection sequence" cannot reasonably be interpreted as a "pre-defined set of routes".

In sum, because Beshai does not disclose each and every feature of claims 1, 6, 8 and 12 it cannot anticipate these claims and their associated dependent claims based on 35 U.S.C. §102(e).

## B. The 35 U.S.C. § 103 Rejections of claims 1, 2, 6, 8, 9 and 12

Claims 1, 2, 6, 8, 9, and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Callon in view of Beshai. The Appellants respectfully disagree for at least the following reasons.

Of the rejected claims, claims 1, 6, 8 and 12 are independent claims. It is to these claims that the Appellants now turn, it being understood that the remaining claims depend on these claims and, therefore, the remarks which follow apply equally to these claims as well.

**(i) claims 1 and 6**

As set forth above, because independent claims 1 and 6 recite similar features, for the sake of clarity, the Appellants direct their attention to claim 1.

**(a) "negotiation of pre-defined sequences" feature**

Callon does not appear to disclose or suggest the feature "wherein the at least one predefined sequence resulted from a negotiation with [a] neighboring node prior to receipt of [a] request". Rather, as Callon itself explains, the "link state packets" received by node 50 are from every node within a network (Callon, col. 4 ln 19-29), not from a negotiation with a neighboring node prior to the receipt of a connection request. Nor does Beshai make up for the deficiencies of Callon.

**(b) "ports and corresponding wavelengths" feature**

In the Final Office Action the Examiner appears to acknowledge that Callon does not disclose the feature of at least one predefined sequence "comprising ports and corresponding wavelengths within a node" as in the present claims. To make up for this deficiency the Examiner appears to rely upon Beshai. However, as explained Beshai does not disclose or suggest pre-defined sequences.

Still further, referring to page 8 of the Final Office Action, the Examiner cites the following language from Beshai:

> The capacity of a link may be changed dynamically by adding channels, for instance by assigning new wavelengths in an optical network. The cost of a link may be defined according to several criteria including such qualities as reliability and delay (see Col. 1, lines 24-29).

Appellants fail to understand the Examiner's reliance on this language from Beshai. It appears as if the Examiner is relying on this language to bolster the position that Beshai discloses or suggests the claimed feature of "assigning a link resource selected from link resources that have been released for

connecting to a neighboring node by using at least one predefined sequence, that comprises ports and corresponding wavelengths within a node". To the extent the Appellants understand the Examiner, the Appellants note the following.

The claims are directed at something more than the general assignment of wavelengths. To the extent that Beshai discloses such an assignment, such a disclosure is not relevant to the issue of anticipation or obviousness of the claimed inventions.

**(c) Advisory Action**

In the Advisory Action the Examiner takes the position that Callon's discussion of "pre-defined paths" is akin to the claimed pre-defined sequences. It is not.

As set forth above, the phrase "pre-defined sequence" means at least a sequence that is used to assign or select link resources within a single node. This sequence is determined separate and a part from determining available paths. Rather than relate to those paths that may be used, the phrase "pre-defined sequence" relates to an order in which *link resources* may be used.

Again, the resources discussed in the specification are ports and corresponding wavelengths, not paths.

Accordingly, in light of the teachings of the specification, the phrase "pre-defined sequence" cannot reasonably be interpreted as a "pre-defined paths".

**(ii) claims 8 and 12**

As explained above, for present purposes independent claims 8 and 12 are similar to claims 1 and 6, except these claims use the phrase "adjacent node" instead of neighboring node.

Similar to the rationales set forth above with respect to claims 1 and 6, neither Beshai nor Callon, taken separately or in combination, discloses or suggests the features of "negotiating a selection sequence...with an adjacent node prior to receipt of a connection request" (claim 8) or "a predefined selection

sequence comprising ports and corresponding wavelengths ...wherein the predefined selection sequence was previously negotiated with [an] adjacent node prior to receipt of [a connection] request" (claim 12).

In sum, the Appellants submit that the subject matter of claims 1, 2, 6, 8, 9 and 12 would not have been obvious to one of ordinary skill in the art at the time the present application was filed based on the combined disclosures of Callon and Beshai.

**C. The 35 U.S.C. § 103 Rejections of claims 4 and 11**

Claims 4 and 11 were rejected under 35 U.S.C. § 103(a) based on the combination of Callon, Beshai and Borchering. The Appellants respectfully disagree for at least the following reasons.

Initially, the Appellants note that there appears to be a typographical error in the Final Office Action. While the first sentence of item 10 (Final Office Action, page 11) refers to a rejection based upon the combination of Beshai and Borchering, the last paragraph appears to refer to a rejection based on Borchering, Callon and Beshai. The Appellants have previously requested clarification of the rejections and once again repeat their request.

Assuming the rejections are based upon the combination of all three references, the Appellants respond as follows.

Claims 4 and 11 depend on claims 1 and 8 and are, therefore, patentable over the combination of Borchering, Callon and Beshai at least for the reasons set forth above and because Borchering does not make up for the deficiencies of Callon or Beshai.

**Conclusion:**

Appellants respectfully request that the members of the Board reverse the decision of the Examiner and allow claims 1-14.

The Commissioner is authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 50-3777 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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## VIII. CLAIMS APPENDIX

1. A method for use in a node of an optical network, the method comprising the steps of:

receiving a connection request; and

assigning a link resource selected from link resources that have been released for connecting to a neighboring node by using at least one predefined sequence, that comprises ports and corresponding wavelengths within a node, to avoid contention resulting from the request,

wherein the at least one predefined sequence resulted from a negotiation with the neighboring node prior to receipt of the request.

2. The method of claim 1, wherein the assigning step includes accessing a table for selecting the link resource for assignment to the connection request, the table comprising link resources arranged in accordance with the at least one predefined sequence, wherein the link resources comprise ports of the node associated with the link.

3. The method of claim 2, wherein the network IS an optical transport network.

4. The method of claim 3, wherein the link resources are selected from the group consisting of wavelengths, SONET-based tributaries, SDH-based tributaries, and PDH-based tributaries.

5. The method of claim 1, wherein the negotiation with the neighboring node prior to receipt of the request results in at least two predefined sequences, a first sequence and a second sequence; and

further wherein the assigning step includes determining if the connection request is a bi-directional request or a unidirectional request;

if a bi-directional request, selecting a first table, the first table comprising link resources arranged in accordance with the first sequence;

if a unidirectional request selecting a second table, the second table comprising link resources arranged in accordance with the second sequence; and

selecting the link resource from the selected table for assignment to the connection request and wherein the link resources comprise wavelengths of the node associated with the link.

6. A method for use in a node of an optical network, the method comprising the steps of:

storing a table, wherein the table comprises resources associated with a link with an adjacent node; and

upon receipt of a connection request, selecting a link resource that has been released from the table for use in connecting to the adjacent node, wherein the selection is performed in accordance with a predefined selection sequence that comprises ports and corresponding wavelengths within a node to avoid contention associated with the request, and

wherein the predefined selection was previously negotiated with the adjacent node prior to receipt of the request.

7. The method of claim 6, wherein the link resource comprises at least wavelengths for use on the link.

8. Apparatus for use in an optical network, the apparatus comprising:

a communications interface for use in negotiating a selection sequence, comprising ports and corresponding wavelengths within a node, with an adjacent node prior to receipt of a connection request; and

a processor, responsive to a connection request, for selecting a resource from link resources that have been released in accordance with the selection sequence for connecting to the adjacent node over a link to avoid contention associated with the request.

9. The apparatus of claim 8, wherein the processor accesses a table for selecting the resource for assignment to the connection request, the table comprising the resources associated with the link arranged in accordance with the selection sequence, and

wherein the resources associated with the link comprise ports associated with the link.

10. The apparatus of claim 9, wherein the network is an optical transport network.

11. The apparatus of claim 10, wherein the resources are selected from the group consisting of wavelengths, SONET-based tributaries, SDH-based tributaries, and PDH-based tributaries.

12. A node of an optical network, comprising:

a memory means for storing a table, wherein the table comprises resources associated with a link with an adjacent node; and

a processing means for use in processing a connection request such that upon receipt of the connection request, the processing means selects a link resource from the table that has been released for use in connecting to the adjacent node, wherein the selection is performed in accordance with a

predefined selection sequence comprising ports and corresponding wavelengths with a node to avoid contention associated with the request, and wherein the predefined selection sequence was previously negotiated with the adjacent node prior to receipt of the request.

13. The node of claim 12, wherein the node is an optical transport network.

14. The node of claim 13, wherein the link resource comprises at least wavelengths for use on the link.

## IX. EVIDENCE APPENDIX

None.

## X. RELATED PROCEEDINGS APPENDIX

None.